



PATENT APPLICATION

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PATENT AND TRADEMARK OFFICE

BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of

Hiroshi KATSURABAYASHI et al.

On Appeal from Group: 3623

Application No.: 09/386,339

Examiner: E. Shaffer

Filed: August 31, 1999

Docket No.: 104122

For: OPTIMUM OPERATOR SELECTION SUPPORT SYSTEM

APPEAL BRIEF TRANSMITTAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Attached hereto are three (3) copies of our Brief on Appeal in the above-identified application.

Also attached hereto is our Check No. 157626 in the amount of Three Hundred Thirty Dollars (\$330.00) in payment of the Brief fee under 37 C.F.R. 1.17(c). In the event of any underpayment or overpayment, please debit or credit our Deposit Account No. 15-0461 as needed in order to effect proper filing of this Brief.

For the convenience of the Finance Division, two additional copies of this transmittal letter are attached.

Respectfully submitted,

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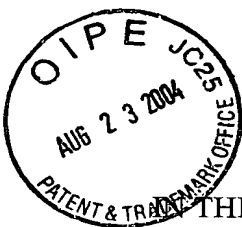
Date: August 23, 2004

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THE UNITED STATES PATENT AND TRADEMARK OFFICE

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BRIEF ON APPEAL

Appeal from Group 3623

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I. INTRODUCTION

This is an appeal from an Office Action mailed January 21, 2004, finally rejecting claims 1-27 of the above-identified patent application.

A. Real Party in Interest

The real party in interest in this appeal in the present application is Fuji Xerox Co., Ltd. by way of an Assignment recorded at Reel/Frame 010210/0325.

B. Statement of Related Appeals and Interferences

There are presently no appeals or interferences, known to Applicants, Applicants' representative or Assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

C. Status of Claims

Claims 1-27 are pending. Claims 1, 5, 7 and 25-27 are independent claims. Claims 2-4 and 8-24 depend from claim 1, and claim 6 depends from claim 5. Claims 1-27 are set forth in the attached Appendix.

D. Status of Amendments

The October 23, 2003 Amendment amended claims 1-27. The Amendment has been entered. No other amendments have been filed.

II. SUMMARY OF THE INVENTION AND APPLIED REFERENCES

A. Summary of the Invention

The invention is directed to an optimum operator selection support system which provides information on individual capabilities of operators by analyzing records of jobs executed by the operators. (See page 1, lines 5-11 and page 9, lines 21-26). The records are analyzed by analyzing the content of electronic information transmitted or received by the operators via computers. The electronic information may be in the form of documents

generated by an operator, or conversations among operators which are stored electronically in the form of electronic mail, for example.

The features of the documents or electronic mail are extracted by, for example, performing morphemic analysis on the main text of the document or email, or analyzing the document to determine the frequency of occurrence of various terms. (See page 20, lines 2-11 and page 23, lines 4-26). In addition, the electronic data may be analyzed to determine job order relations and a job feature management table.

In embodiments, the documents are managed by a document management unit. A document feature extraction unit extracts a plurality of documents generated by one operator from the document management unit, and extracts features of the respective extracted documents. (See page 20, lines 2-11). A job feature extraction unit extracts features of jobs by the operator by detecting features common to the plurality of documents extracted by the document feature extraction unit, and generates a job feature management table. (See page 29, lines 22-27). The features common to the plurality of documents generated by one responsible staff member are registered in the job feature management table. By referring to the job feature management table, jobs of responsible staff members can be determined exactly. (See page 17, line 26 - page 18, line 5).

B. The Rejections

The final Office Action rejects claims 1-13, 15-20, 22 and 24-27 under 35 U.S.C. §103(a) over U.S. Patent No. 5,825,869 to Brooks et al. (hereinafter "Brooks").

The final Office Action rejects claims 14, 21 and 23 under 35 U.S.C. §103(a) over Brooks in view of U.S. Patent No. 6,038,544 to Machin et al. (hereinafter "Machin").

For the reasons detailed below, it is respectfully submitted that these rejections are improper and should be reversed.

1. **U.S. Patent No. 5,825,869 to Brooks et al.**

Brooks discloses a call-management method and system for distributing calls to a plurality of individuals, such as automatic call distribution agents, including routing calls to the individuals based upon a correlation of attributes of the individuals with calls that are tagged with identification of abilities that are advantageous to efficiently processing the calls. That is, for each call that is to be distributed, one or more skills that are relevant to efficient handling of the call are determined and then used to route the call to an appropriate individual. Attributes of an individual are assigned a level indicative of the ability or preference of the individual with respect to types of calls.

Each call is associated with a skill expression that identifies the skills that are relevant to efficient handling of the call. The skill expression may include both mandatory and optional skills. The selection of an available agent is based upon the skill expression of the call, the call-handling capabilities of the individual agents, or the call-management preferences established by the call center management.

2. **U.S. Patent No. 6,038,544 to Machin et al.**

Machin discloses a system and method that determine the performance of a user responding to a call by presenting prerecorded incoming voice segments associated with the call to the user. The user then interacts with an interface to respond to the incoming voice segments by generating user input. The user input may be a selection of an appropriate response to the incoming voice segment and/or the entering of information regarding the customer or the reason for the call. The systems and method then determine the performance of the user based on the user input, thereby providing a realistic job preview that can both assess critical job skills and expose the applicant to a realistic job preview.

III. THE ISSUES ON APPEAL

1. Whether, under 35 U.S.C. §103(a), claims 1-13, 15-20, 22 and 24-27 would have been obvious over Brooks.

2. Whether, under 35 U.S.C. §103(a), claims 14, 21 and 23 would have been obvious over Brooks in view of Machin.

IV. GROUPING OF CLAIMS ON APPEAL

Each claim of this patent application is separately patentable, and upon issuance of a patent will be entitled to separate presumption of validity under 35 U.S.C. §282. For the convenience in handling of this appeal, the claims are grouped as follows:

Group I: claims 1-4, 8-24 and 25;

Group II: claims 5-6 and 26;

Group III: claims 7 and 27.

Each of Groups I-III are argued separately in the following arguments. The groups do not stand or fall together.

V. LAW 35 U.S.C. §103(a) (OBVIOUSNESS)

In rejecting claims under 35 U.S.C. §103, it is incumbent on the Examiner to establish a factual basis to support the legal conclusion of obviousness. See, *In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one of ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. *Uniroyal Inc. v. F-Wiley Corp.*, 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988), *cert. denied*, 488 U.S. 825 (1988); *Ashland Oil, Inc. v. Delta Resins & Refractories*,

Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), *cert. denied*, 475 U.S. 1017 (1986); *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a *prima facie* case of obviousness. Note, *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). A showing of a suggestion, teaching, or motivation to combine the prior art references is an "essential evidentiary component of an obviousness holding." *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be suggested or taught by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1970). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

It is well settled that a rejection based on 35 U.S.C. §103 must rest on a factual basis, which the Patent and Trademark Office has the initial duty of supplying. *In re GPAC, Inc.*, 57 F.3d 1573, 1582, 35 USPQ2d 1116, 1123 (Fed. Cir. 1995). This evidence may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved. See *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996).

However, the suggestion more often comes from the teachings of the pertinent references. See *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998). This showing must be clear and particular, and broad conclusory statements about the teaching of multiple references, standing alone, are not "evidence." See *In re Dembiczak*, 175

F.3d 994 at 1000, 50 USPQ2d 1614 at 1617. However, the suggestion to combine need not be express and "may come from the prior art, as filtered through the knowledge of one skilled in the art." *Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d 1461, 1472, 43 USPQ2d 1481, 1489 (Fed. Cir. 1997).

It is impermissible for an Examiner to engage in hindsight reconstruction of the claimed invention using appellant's structure as a template and selecting elements from the references to fill the page. The references themselves must provide some teaching whereby the appellant's combination would have been obvious. *In re Gorman*, 911 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). That is, something in the prior art as a whole must suggest the desirability, and thus obviousness, of making the combination. See, *In re Beattie*, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992); *Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick Co.*, 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984).

Lastly, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

VI. ARGUMENT

A. Group I: Claims 1-4, 8-24 and 25

Appellants submit that Brooks does not disclose or suggest each and every feature recited in independent claim 1 and dependent claim 25, and that the final rejection has failed to make out a *prima facie* case of obviousness.

The invention disclosed in Brooks is fundamentally different than the invention recited in claims 1 and 25, as in Brooks, the optimum operator is selected to handle each incoming call, based on the attributes of the operator, and on the call-management

preferences of the call center management. The attributes of the operator are defined by, for example, a resume. The present application is directed to the determination of the attributes of the operator, based on the work product of the operator, in terms of, for example, documents and electronic mail. In addition, Brooks deals exclusively with telephone calls, rather than documents. As a result, Brooks does not disclose a number of features recited in claims 1 and 25, particularly those which analyze the attributes of the operators by analyzing electronic data transmitted between the operators, such as documents and electronic mail.

In particular, Appellants submit that Brooks does not disclose or suggest "a document feature extraction part that extracts a plurality of documents generated by one operator from said document management part," as recited in claims 1 and 25. Appellants further submit that Brooks does not disclose or suggest "a job feature extraction part that extracts features of jobs of said operator by detecting common features from a frequency of occurrence of terms in the plurality of documents extracted by said document feature extraction part," as recited in claims 1 and 25.

Throughout prosecution, the Examiner has failed to identify specifically the elements in Brooks that allegedly correspond to the "plurality of documents generated by one operator." In the first Office Action, the Examiner asserted: "Documents are generated by calls and reflect or relate to an operator's performance is anticipated by Brooks et al., which discloses 'a match analysis report summarizes all calls received by skill expression and shows the abandon rate per skill expression.'" However, claim 1 recites "a plurality of documents generated by one operator," not a plurality of documents generated by calls reflecting or relating to an operator's performance. Nowhere in Brooks is the match analysis report disclosed as being generated by one operator, as the match analysis report is a summary of calls received by a skill expression.

In the second Office Action, the Examiner asserted: "Applicants argue that the Brooks invention does not extract a plurality of documents from one operator. However, the Brooks invention does extract one document at a time and official notice has been given that extracting features from one document is so very similar to extracting features from a plurality of documents that such a slight difference does not present a new or novel functionality." However, the second Office Action failed to identify where, in Brooks, the extraction of features of one document generated by one operator is allegedly disclosed.

Finally, in the final Office Action, the Examiner asserts: "While the Brooks reference extracts features from one document, it does not specifically teach the extraction of features from a plurality of documents. However, Brooks does teach extracting features or attributes from a plurality of sources by extracting skills and levels of proficiencies from a first form called resumes (column 4, lines 63-65 and column 5, lines 32-34), and extracting call management preferences from the particular individuals who are placing the calls, which are recorded via interactive voice response (column 5, lines 1-2 and column 5, line 51)."

The final Office Action appears to identify the first document as the resume, and second document as the "call management preferences from the particular individuals who are placing the calls." However, the resume is not disclosed by Brooks to be generated by the operator to which it corresponds. According to column 5, lines 32-35, "the resume includes both the level of ability achieved in each skill ... and the levels of the call management preferences for the agent, i.e., the importance that the system administrator assigns to the skills of the agent." (Emphasis added). Therefore, even the resume in the Brooks reference is not "generated by one operator." Further, the call management preferences are not identified as a document, and they are clearly not generated by the one operator, but rather by "the particular individuals placing the calls."

Furthermore, Brooks deals primarily with distributing calls among a collection of agents based upon the individual call handling capabilities of the agents, and not based on the documents generated by the agents. Therefore, to modify the Brooks invention to extract a plurality of documents generated by one operator, would change the principle of operation in the Brooks invention. According to MPEP §2143.01, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.

The final Office Action asserts it would have been obvious for one of ordinary skill in the art to modify a device that extracts features from a plurality of sources, one of which is a document, to extract features from a plurality of sources where more than one source is a document. However, Appellants submit that nowhere in Brooks is such a motivation expressed, nor would it have been obvious to one skilled in the art to adapt a method for selecting an agent in an automatic call distribution center to a method based on analyzing a plurality of documents generated by the agent. Instead, the stated motivation is purely a conclusory statement, which is not "evidence" according to *In re Dembiczak*, 175 F.3d 994 at 1000, 50 USPQ2d 1614 at 1617.

Appellants additionally submit that Brooks does not disclose or suggest a "job feature extraction part that extracts features of jobs of said operator by detecting common features from a frequency of occurrence of terms in the plurality of documents extracted by said document feature extraction part." The final Office Action asserted that Brooks teaches that the attributes of individual operators are selected from the first data resume and from the second data caller interactive voice response or a combination of both. However, the attributes of individual operators are not equivalent to the features of jobs of said operator and the attributes of individual operators are not extracted by detecting common features from a

frequency of occurrence of terms in the plurality of documents generated by one operator.

The final Office Action appears to suggest that the first document is the first data resume, and that the second document is the second data caller interactive voice response. However, as argued above, the second data caller interactive voice response is neither a document nor is it generated by the one operator that allegedly generated the first data resume. Therefore, Brooks does not disclose each and every feature recited in claims 1 and 25, and the final Office Action has failed to make out a *prima facie* case of obviousness.

Claims 14, 21 and 23 are rejected under 35 U.S.C. §103(a) over Brooks in view of Machin. Appellants submit that Machin does not remedy the deficiencies of Brooks with respect to claim 1, as Machin is directed to a system for testing the responses of a prospective call handling candidate, by simulating an incoming call. Machin does not deal with documents generated by one operator. Accordingly, Machin does not disclose or suggest "a document feature extraction part that extracts a plurality of documents generated by one operator from said document management part," or "a job feature extraction part that extracts features of jobs of said operator by detecting common features from a frequency of occurrence of terms in the plurality of documents extracted by said document feature extraction part," as recited in claim 1.

Claims 2-4 and 8-24 depend from claim 1, and are patentable for at least the reasons set forth above with respect to claim 1, as well as for the additional features they recite. Thus, the rejection of claims 2-4 and 8-25 under 35 U.S.C. §103(a) is improper and should be reversed.

B. Group II: Claims 5-6 and 26

The final Office Action finally rejects claims 5-6 and 26 under 35 U.S.C. §103(a) over Brooks. Specifically, the final Office Action asserts that Brooks teaches a task management part that analyzes job order relations including the authority levels of operators, based on

electronic data transmitted/received among operators, as it teaches the use of "priority classes and priority levels" (column 12, line 51). However, the element of "authority levels of responsible operators" implies a ranking in terms of authority of the various operators relative to one another, whereas the priority classes and priority levels disclosed by Brooks corresponds to a priority ranking of the incoming calls, not the operators. For example, as disclosed in column 12, lines 49-52, "the priority level for a particular call will increase as time elapses. Calls with higher priority class and higher priority levels are handled first, thus minimizing the wait time for calls in the queue." There is absolutely no reference to the authority levels of operators in this cited text, nor are the job order relations based on electronic data transmitted/received among operators. Therefore these claimed features are not disclosed or suggested in Brooks.

Accordingly, the final Office Action fails to make out a *prima facie* case of obviousness of the invention recited in independent claim 5. Claims 6 and 25 depend from claim 5, and are patentable for at least the reasons set forth above with respect to claim 5, as well as for the additional features they recite. Accordingly, the rejection of claims 5-6 and 25 under 35 U.S.C. §103(a) is improper and should be reversed.

C. Group III: Claims 7 and 27

Appellants respectfully submit that Brooks does not disclose or suggest "a job feature extraction part that extracts features of jobs of the operators, and generates a job feature management table including the names and roles of responsible operators," as recited in independent claim 7 and dependent claim 27.

The final Office Action cites Figure 3 and column 10, line 11 and the "skill expression table" as allegedly disclosing this feature. However, column 10, line 11 discloses only that "Fig. 3 identifies an enabling step 64 of forming a skill-expression table." The skill expression table is then further defined in column 10, lines 17-19, which disclose "A 'skill

expression' is a simple formalism for stating the skills that are required or advantageous to processing the associated call." There is no disclosure in any of the passages of column 10 of the skill expression including the names and roles of responsible operators. Thus, Brooks fails to disclose or suggest "a job feature management table, including the names and roles of responsible operators," as recited in claims 7 and 27.

Accordingly, the rejection of claims 7 and 27 under 35 U.S.C. §103(a) is improper and should be reversed.

VII. REBUTTAL OF ARGUMENTS IN THE ADVISORY ACTION

The Advisory Action asserts that Brooks does generate at least two documents for each operator, a resume with skills listed and an agent summary report by the operator. However, Appellants submit that the Examiner is misquoting the claims, as claim 1 recites "a plurality of documents generated by one operator," not for one operator. Neither of these "documents" identified in the Advisory Action is indicated in Brooks to be generated by the operator. In fact, the resume is described in column 9, lines 1-4 as describing "both the level of ability, i.e., expertise, in each skill and the level of preference that call management has for the agent to handle transactions that require particular skills versus transactions that require other skills." Therefore, Brooks teaches that the resume is generated, at least in part, by call management, rather than by the operator. Further, there is no disclosure in Brooks that the operator generates the resume. The agent summary report described in column 6, lines 32-34, is taught to be a part of the quality of service report generated to indicate the effectiveness of the call management method and system. There is no indication in Brooks that the agent summary report is a document generated by the operator.

In addition, the Advisory Action asserts that "Applicant argues that Brooks does not disclose extraction of features of jobs by operators detecting common features from a frequency of occurrence. However, Brooks does use a skill expression (column 13, lines 5-

10) that measures up to 100 different types of skills based on a level of proficiency as generated by an operator. It is also inherent that skill levels, which are based on expertise, are based on the experience or frequency with which one performs a task...Skill level is therefore based on experience, which is synonymous with how frequently an operator performs a given type of work." Here again, the Examiner is misquoting claim 1, which recites "a job feature extraction part that extracts features of jobs of said operator by detecting common features from a frequency of occurrence of terms in the plurality of documents extracted by said document feature extraction part." Therefore, the frequency of occurrence is the frequency of occurrence of terms in the plurality of documents, not the frequency with which the operator performs a given type of work.

The Advisory Action asserts that Brooks discloses the task management part that analyzes job order relations including authority levels of responsible operators, based on electronic data transmitted/received among operators, by disclosing a skill score to identify an agent's unique skill set. However, the skill score is defined in column 11, lines 13-15 as "a numeric measure of how well a particular agent's resume matches the skill expression associated with the call." The skill score does not include authority levels of the responsible operators, nor is the skill score based on electronic data transmitted/received among operators.

The Advisory Action indicates that the job feature management table including the names and roles of responsible operators is taught by the skills table (column 9, lines 11-30). However, according to column 9, lines 11-30, the skills table contains a list of all valid values for a "skill" relevant to handling calls of the ACD system. A "skill" is a job or area of expertise in which an agent has competence or experience. A "skill" may be further defined as being unique to an individual or common to various individuals. This skill commonality

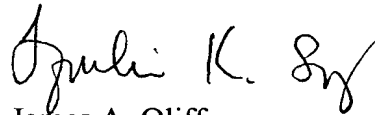
may be considered as creating a "team." Nowhere in this explanation of the skill table are the names and roles of responsible operators included.

The continued change in the basis of the rejection and the misquoting of claim language which has occurred throughout the prosecution of this application indicates the difficulty that the Examiner has in maintaining that the Brooks reference discloses the various features recited in the claims. Applicants respectfully submit that this difficulty results from the fact that Brooks and Machin are directed to a different application and a different situation than the invention recited in the rejected claims.

VIII. CONCLUSION

The final Office Action fails to make out a *prima facie* case of obviousness for the reasons stated above, and the rejection of claims 1-27 should be reversed. The Honorable Board is requested to reverse the rejections set forth in the final rejection and to pass this application to issuance.

Respectfully submitted,



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Appendix A

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|--|
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APPENDIX A

CLAIMS:

1. A computer executing an optimum operator selection support system, comprising:
 - a document management part that manages documents stored by said computer related to jobs, with additional information on operators who generated the documents;
 - a document feature extraction part that extracts a plurality of documents generated by one operator from said document management part, and extracts features of the respective documents; and
 - a job feature extraction part that extracts features of jobs of said operator by detecting common features from a frequency of occurrence of terms in the plurality of documents extracted by said document feature extraction part.
2. The computer according to claim 1, further comprising a task management part that analyzes job order relations based on electronic data transmitted/received among operators, and manages information on the job order relations,
 - wherein said job feature extraction part extracts the features of the jobs and roles of said operator based on the features of documents extracted by said document feature extraction part and the information on the job order relations managed by said task management part.
3. The computer according to claim 2, further comprising:
 - a conversation management part that manages conversations among the operators by utilizing electronic data; and
 - a conversation feature extraction part that extracts features of the conversations among the operators managed by said conversation management part,

wherein said job feature extraction part extracts the features of the jobs of said operator from the features of the documents extracted by said document feature extraction part and distribution of the conversations extracted by said conversation management part, and extracts the roles of said operator from the information on the job order relations managed by said task management part.

4. The computer according to claim 1, further comprising:

a conversation management part that manages conversations among the operators by utilizing electronic data; and

a conversation feature extraction part that extracts features of the conversations among the operators managed by said conversation management part,

wherein said job feature extraction part extracts the features of the jobs of said operator from the features of the documents extracted by said document feature extraction part and distribution of the conversations extracted by said conversation management part.

5. A computer executing an optimum operator selection support system, comprising:

a task management part that analyzes job order relations, including authority levels of responsible operators, based on electronic data transmitted/received among operators, and stored by said computer, and manages information on the job order relations; and

a job feature extraction part that extracts roles of said operators to perform jobs, from job order relations extracted by said task management part.

6. The computer according to claim 5, further comprising:

a conversation management part that manages conversations among the operators by utilizing electronic data; and

a conversation feature extraction part that extracts features of the conversations among the operators managed by said conversation management part, wherein said job feature extraction part extracts the features of the jobs of said operators from distribution of the conversations extracted by said conversation management part, and extracts the roles of said operators from the information on the job order relations managed by said task management part.

7. A computer executing an optimum operator selection support system, comprising:

a conversation management part that collects conversation information among operators by utilizing electronic data, said data being stored by said computer, and manages the collected conversation information;

a conversation feature extraction part that extracts features of the conversations among the operators managed by said conversation management part; and

a job feature extraction part that extracts features of jobs of the operators and generates a job feature management table, including names and roles of responsible operators, from distribution of the conversations extracted by said conversation management part.

8. The computer according to claim 1, further comprising a similar job search part that searches for similar jobs based on information extracted by said job feature extraction part.

9. The computer according to claim 1, further comprising a reference material automatic collection part that searches for similar jobs to a designated job and collects documents related to the similar jobs as reference materials.

10. The computer according to claim 1, further comprising a job structure generation part that generates a structure representing roles of operators related to a job.

11. The computer according to claim 10, wherein said job structure generation part generates an association diagram showing the job based on roles in the job, and describes the roles of the operators and features extracted from generated documents in the diagram.

12. The computer according to claim 1, further comprising an optimum operator selection part that selects optimum operators based on information extracted by said job feature extraction part.

13. The computer according to claim 1, further comprising:
an inquiry part that makes an inquiry to said job feature extraction part; and
a display information analysis part that analyzes response information to inquiry information by said inquiry part, and generates image information having a content to be easily understood.

14. The computer according to claim 13, wherein said display information analysis part generates the image information as a graph representing documents and features of the documents handled by an arbitrary operator, among documents generated in a job conducted by a plurality of operators.

15. The computer according to claim 1, further comprising a similar operator search part that searches for operators having similar roles based on information extracted by said job feature extraction part.

16. The computer according to claim 1, further comprising a key-person search part that detects an operator who played a leading role in a job handled by a plurality of operators.

17. The computer according to claim 1, further comprising a key-person search part that classifies features of documents generated by respective operators, extracted by said document feature extraction part, based on similarity, then searches for an operator who has been involved in many of classified items as a person who grasps the documents from a broad

view, and determines said operator as a key person who played a leading role in a job handled by the plurality of operators.

18. The computer according to claim 1, further comprising a key-person search part that classifies features of documents generated by respective operators, extracted by said document feature extraction part, based on similarity, then searches for an operator who has been involved in many of classified items as a technical leader, and determines said operator as a key person who played a leading role in a job handled by the plurality of operators.

19. The computer according to claim 4, further comprising a key-person search part that searches for an operator who has frequently performed communication with most of operators of a job, from information extracted by said conversation feature extraction part, and determines said operator as a key person who played a leading role in a job handled by the plurality of operators.

20. The computer according to claim 1, further comprising a similar job search part that searches for similar jobs based on information extracted by said job feature extraction part.

21. The computer according to claim 4, wherein said conversation management part further includes a conversation information input part that inputs conversation information which has not been automatically obtained by said conversation management part,

and wherein said conversation management part handles the conversation information inputted by said conversation information input part as information similarly to collected conversation information.

22. The computer according to claim 4, further comprising a mail quotation detection and deletion part that deletes a quotation from another operator's remark, from conversation information managed by said conversation management part.

23. The computer according to claim 4 , wherein said conversation feature extraction part separately extracts features of a quotation from another operator's remark and a newly-written remark.

24. The computer according to claim 4, further comprising an important member detection part that detects a person who is not registered by said conversation management part as a member to conduct a job but significantly related to the job for execution of the job.

25. A computer-readable recording medium containing an optimum operator selection support program, said program causing a computer to function as:

a document management part that manages documents related to jobs, with additional information on operators who generated the documents;

a document feature extraction part that extracts a plurality of documents generated by one operator from said document management part, and extracts features of the respective documents; and

a job feature extraction part that extracts features of jobs of said operator by detecting common features from a frequency of occurrence of terms in the plurality of documents extracted by said document feature extraction part.

26. A computer-readable recording medium containing an optimum operator selection support program, said program causing a computer to function as:

a task management part that analyzes job order relations, including authority levels of responsible operators, based on electronic data transmitted/received among operators, and manages information on the job order relations; and

a job feature extraction part that extracts roles of said operators to perform jobs, from job order relations extracted by said task management part.

27. A computer-readable recording medium containing an optimum operator selection support program, said program causing a computer to function as:

a conversation management part that collects conversation information among operators by utilizing electronic data, and manages the collected conversation information;

a conversation feature extraction part that extracts features of the conversations among the operators managed by said conversation management part; and

a job feature extraction part that extracts features of jobs of the operators and generates a job feature management table, including names and roles of responsible operators, from distribution of the conversations extracted by said conversation management part.